IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent of:	Matt Crowley, et al.	
U.S. Patent No.:	8,497,928	Attorney Docket No.: 39521-0047IP2
Issue Date:	July 30, 2013	
Appl. Serial No.:	11/831,051	
Filing Date:	July 31, 2007	
Title:	TECHNIQUES TO AUTOMATICALLY FOCUS A DIGITAL CAMERA	

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PETITION FOR *INTER PARTES* REVIEW OF UNITED STATES PATENT NO. 8,497,928 PURSUANT TO 35 U.S.C. §§ 311–319, 37 C.F.R. § 42

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Apple Inc., ("Petitioner") petitions for *Inter Partes* Review ("IPR") of claims 7, 8, 10, 11, and 13 ("the Challenged Claims") of U.S. Patent No. 8,497,928 ("the '928 Patent").

I. REQUIREMENTS FOR IPR UNDER 37 C.F.R. § 42.104

A. Grounds for Standing Under 37 C.F.R. § 42.104(a)

Apple certifies that the '928 Patent is available for IPR. The present petition is being filed within one year of service of a complaint against Apple in Case No. 3:17-CV-02403 at the United States District Court for the Southern District of California. Apple is not barred or estopped from requesting this review of the Challenged Claims.

B. Challenge Under 37 C.F.R. § 42.104(b) and Relief Requested

Petitioner requests IPR of the Challenged Claims on the grounds listed below:

Ground	Claims	Basis
Ground 2-A	**7, 10**	103–Konicek-Kitamura-Suh-Steinberg'056
Ground 2-B	**8, 11**	103–Konicek-Kitamura-Suh-Steinberg'056-Tanaka
Ground 2-C	**13**	103–Konicek-Kitamura-Suh-Steinberg'056-Suzuki

Kitamura (APPLE-1012), published October 16, 2003, Suh (APPLE-1013), published December 20, 2005, and Tanaka (APPLE-1015), published September 30, 2004, each qualify as prior art under at least 35 U.S.C. §102(b) because they were published over a year before the earliest proclaimed priority date (July 31, 2007) of the '928 Patent. Konicek (APPLE-1011), filed October 17, 2005, Steinberg'056

(APPLE-1014), filed June 26, 2003, and Suzuki (APPLE-1016), filed February 4, 2000, each qualify as prior art under at least 35 U.S.C. §102(e) because they are published versions of patent applications filed in the United States before the earliest proclaimed priority date (July 31, 2007) of the '928 Patent.

II. RELATION TO OTHER PATENT OFFICE PROCEEDINGS

A. Relation to *Ex Parte* Prosecution

Notably, the disclosure of Konicek, advanced as a primary reference in the substantive analysis below at Section IV, has never been considered by the Patent Office in connection with the '928 Patent's claims. Nor is Konicek's disclosure similar or cumulative with respect to those references that *were* considered and appear on the face of the '928 Patent. While disclosures identical or similar to Suh, Tanaka, and Steinberg '056 were raised during prosecution, these are advanced as secondary references for limited disclosures that supplement Konicek.

Unlike certain prior cases where other panels have denied institution under 35 U.S.C. § 325(d)[1], each of the grounds advanced in *this* Petition are based in

[1] *See*, *e.g.*, *Cultec*, *Inc*. *v. StormTech LLC*, IPR2017-00777, Paper 7 at 8-13 (PTAB Aug. 22, 2017) (informative) (petitioner relied upon similar claim charts to those it submitted as a third party during prosecution), *Unified Patents Inc. v. John L. Berman*, IPR2016-01571, Paper 10 at 9-13 (PTAB Dec. 14, 2016) (informative) (no

significant measure on entirely new and different prior art—*i.e.*, Konicek—and therefore warrant substantive consideration by the Board.

B. Relation to Other Petitions

As noted at Section VII(B) (*infra*), Petitioner has also challenged claims 7, 8, 10, 11, and 13 of the '928 Patent based on different prior art references in a concurrently filed petition. Any consequential burden on Patent Owner and the Office that arises from these two petitions is offset by the efficiency gained from Petitioner's culling of claims from challenge that are indefinite (*e.g.,* claims 1-5 and 16)[2] and/or far removed from the co-pending district court litigation (*e.g.*, claims 5, 9, 12, and 14-16). As a result, the two concurrently filed petitions offer distinct

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reason for readjudicating the same prior art presented to examiner), *Becton, Dickinson and Company v. B. Braun Melsungen AG*, IPR2017-01586, Paper 8 at 17-28 (PTAB Dec. 15, 2017) (informative) (references combined were applied separately by examiner), *Kayak Software*, Paper 16 at 7-12 (new three-way combination "extensively considered" by the Office in various two-way combinations).

[2] Claim 1, for example, recites certain "module" terms that invoke § 112, ¶6 under *Williamson v. Citrix Online*, LLC, 792 F.3d 1339 (Fed. Cir. 2015) (en banc), yet lack the necessary written description support.

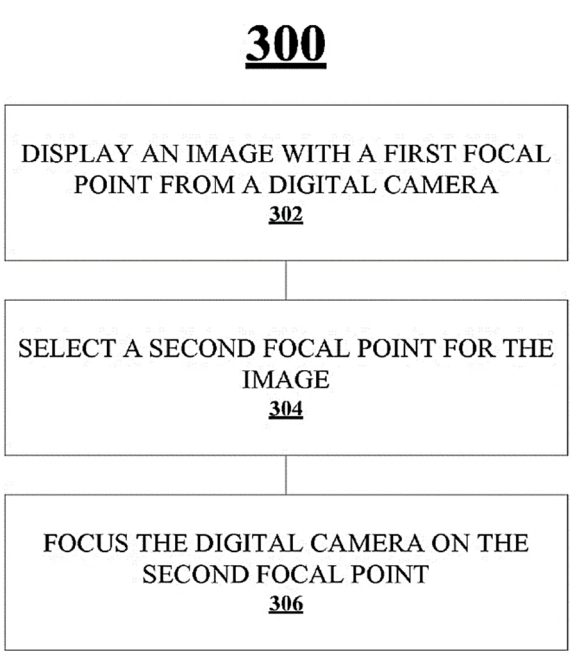
meritorious challenges that are both narrowly focused and robustly articulated. Moreover, as the petitions are concurrently filed, the proceedings can progress in parallel with further efficiencies gained from shared depositions and oral hearings, allowing the Board and the parties to work towards the common goal of "secur[ing] the just, speedy, and inexpensive resolution of every proceeding." 37 CFR § 42.1(b).

III. SUMMARY OF THE '928 PATENT

A. Brief Description

The '928 Patent is "generally directed to techniques to automatically focus a digital camera." APPLE-1001, 1:36-37 *see also* APPLE-1003, ¶¶31-44 (reviewing the '928 Patent in detail with reference to APPLE-1017, APPLE-1019). That said, even the '928 Patent concedes that "[m]any [existing] digital cameras provide an autofocus feature . . . that allows a user of a digital camera to obtain the correct focus on a subject rather than requiring the operator to adjust focus manually." *Id*., 1:13-16 (Background). Accordingly, the alleged advance over the prior art touted by the '928 Patent is merely "a technique to allow users to more easily determine the area of the photograph they wish to focus on[.]" *Id*., 1:19-21.

The basic paradigm of the '928 Patent is as simple as the three-step "logic flow" illustrated by its Figure 3 (right)—Display the image with a first focal point (**302**); Select a second focal point for the image (**304**); and Focus on the second focal point (**306**). *See id*., 1:30, 10:55-11:3.



While the Challenged Claims provide verbose recitations of this rudimentary auto-focus technique, claim length does not equate to patentability. Nor should patentability be conferred by added recitations directed to camera functions (*e.g.*, touch-based user input and variable flash intensity) that were known in the art at the relevant time period.

B. The Prosecution History

The '928 Patent was filed July 31, 2007 as Appl. No. 11/831,051 ("the '051 Application"). Throughout a prosecution period spanning over three years, the claims of the '051 Application were repeatedly rejected in view of the prior art and responsively amended or canceled by the applicant (Palm, Inc.). *See generally* APPLE-1002, 41-498. In response to the last of nine office actions issued by the Examiner, the applicant argued that the prior art allegedly lacks disclosure of the

following features (APPLE-1002, 47-49):

> Element 7[c]: focusing the lens component from the first focal point to the second focal point while the image is being displayed; and
>
> Element 7[d]: "selecting a flash level value representing a flash intensity for a flash component based on the second focal point.

As discussed below, however, performing auto-focus "while the image is being displayed" (Element 7[c]) and relating flash-intensity control to focal-point selection (Element 7[d]) were not novel or inventive concepts in 2007. APPLE-1003, ¶¶146, 148-161, fn4 (Element 7[c]); *see also id*., ¶¶42, 142, 171-176 (Element 7[d]). In fact, the features of Konicek's digital camera, as further explained and enhanced by the disclosures of Suh, Kitamura, and Steinberg'056, provides the combination of claim elements mistakenly believed by the Examiner to be missing from the prior art.

C. Claim Construction and Level of Skill

Petitioner submits that all terms should be given their plain meaning as understood by a person of ordinary skill in the art at the time of the alleged invention ("POSITA") in view of the '928 Patent's specification, but reserves the right to respond to any constructions that may later be offered by Patent Owner or adopted by the Board. Petitioner is not waiving any arguments concerning indefiniteness or claim scope that may be raised in litigation.

For purposes of this IPR, a POSITA would have had a Master of Science Degree in an academic area emphasizing electrical engineering, computer engineering, optics design or an equivalent field (or a similar technical Master's Degree, or higher degree). APPLE-1003, ¶¶25-26. Alternatively, a POSITA would have had a Bachelor's Degree (or higher degree) in an academic area emphasizing one or more of these technical disciplines and three or more years of corresponding industry work experience. APPLE-1003, ¶¶25-26. Such an individual would also have education or industry experience in the area of user-interface design. Additional education or industry experience may compensate for a deficit in one of the other aspects of the requirements stated above. APPLE-1003, ¶¶25-26.

IV. THE CHALLENGED CLAIMS ARE UNPATENTABLE

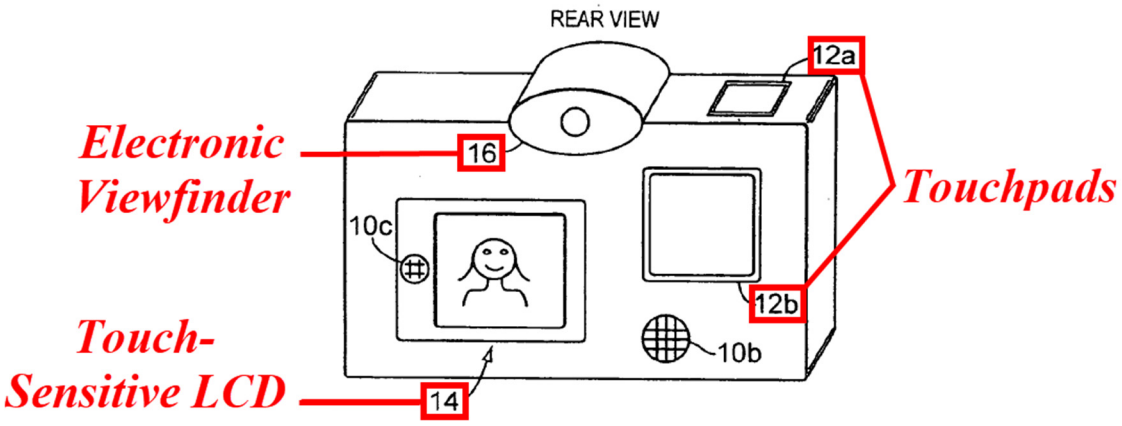
A. [GROUND 2-A]—Claims 7, 10 are rendered obvious by Konicek in view of Kitamura, Suh, and Steinberg'056

Overview of Konicek[3]

Konicek, entitled "User-Friendlier Interfaces for a Camera," describes "[a] system and method . . . for enabling user friendly interaction with a camera system." APPLE-1001, Abstract; *see also id*., [0005]; *see also* APPLE-1003, ¶125. To achieve the objective of "user-friendliness," Konicek augments digital cameras with a variety of user interface technologies, including gaze tracking through electronic

[3] Petitioner incorporates this Konicek discussion into Grounds 2A-2C, *infra*.

viewfinder **16**, and touch-based inputs via touchpads **12a**, **12b** and touch-sensitive LCD **14**. *See id*., Abstract, [0003-0004], [0023-0032]; *see also* Figure 1 (below).



The gaze tracking functionality of Konicek's camera enables the user to adjust the focal point by merely looking at a particular area of the image in the electronic viewfinder (EVF). *See* APPLE-1011, [0026-0028]. More specifically, Konicek describes a technique where the portion of the EVF image gazed upon by the user is weighted more heavily during auto-focus calculations. *See id*., [0028]. Thus, unlike prior imaging devices where the point of focus would be statically pre-selected or established by default, Konicek's camera allows user-input to control the auto-focus process in real-time. *See id*.

Konicek's focal-point selection feature is complemented by flash-adjustment functionality. *See* APPLE-1011, [0029]. That is, the same eye-gazing user input utilized to emphasize a particular portion of the image during the auto-focus process is also leveraged for determining the appropriate amount of fill flash. *Id*. Konicek achieves this harmonization of auto-focus and auto-fill-flash by "giv[ing] more

weight, in determining the scene brightness, to the area of the scene indicated by the gaze tracker as being gazed upon." *Id*. Accordingly, the focal point selected by the user is both placed in clear focus and properly illuminated by fill flash.

In addition to gaze tracking, Konicek notes that "touch input" is a suitable mechanism through which the user can control various aspects of the handheld device, such as "camera menus, camera features, camera options, camera settings, commanding picture taking, [and] enabling flash[.]" APPLE-1011, [0046]. For example, Konicek describes how various touch gestures (*e.g.*, tap, touch-and-hold, and stroke) can be used to trip the shutter of the camera, initiate and (optionally) lock auto-focus, and control the zoom lens. *See id*., [0030-0031]. Touch input in Konicek's camera can be implemented via touchpad or a touch-sensitive LCD. *See*, *e.g.*, *id*., [0023-0024], [0032], [0046-0048].

Various components of the camera (*e.g.*, LCD **42**, AF motor **48**, touchpad device **62**, gaze tracker **57**, and camera controller **40**) utilized to implement the features discussed above are illustrated in the functional diagram of Konicek's Figure 3 (below).

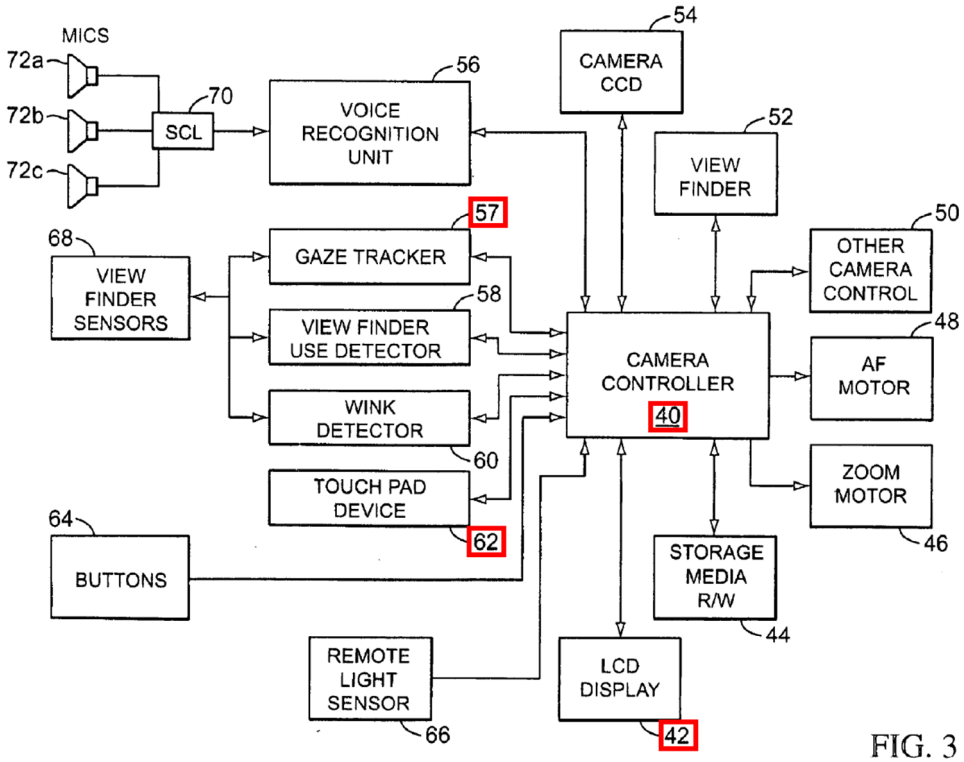


FIG. 3

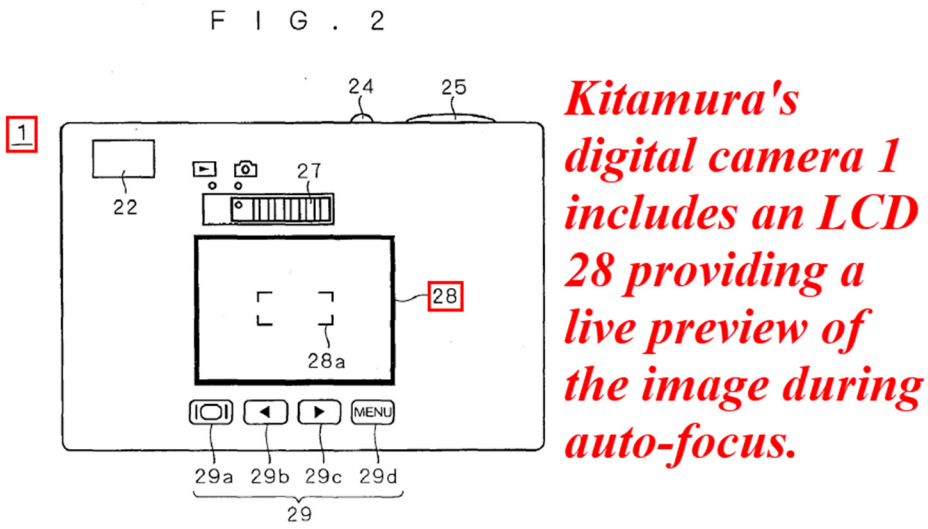
Konicek's Controller 40 implements focus and flash functionality in response to user input via Touch-Sensitive LCD 42, Touchpad Device 62, and/or Gaze Tracker 57.

Overview of Kitamura[4]

Kitamura describes a digital camera **1** having multiple modes/states of operation, including "an image capturing standby state [where] live-view display is performed" on a liquid crystal monitor **28** (an LCD). APPLE-1012, [0053-0055]; *see also id*., Figures 1, 2 (annotated below), 3; *see also* APPLE-1003, ¶126. This live-view display allows the user to frame the scene by utilizing the liquid crystal monitor as a viewfinder. APPLE-1003, ¶152 (citing APPLE-1012, [0055]). In

[4] Petitioner incorporates this Kitamura discussion into Grounds 2A-2C, *infra*.

addition to providing a live-view display, Kitamura's digital camera is further operable to perform auto-focus operations while in the image capturing standby state. *See generally* APPLE-1012, [0088-0111], Figure 7 (**ST14:** Update Live-View Image, **ST17:** Auto-Focus Control), Figure 8; *see also id.*, [0074-0077], [0083-0087].



Accordingly, Kitamura's disclosure is particularly concerned with solutions to the problem of simultaneously displaying an image on an LCD during auto-focus. *See* APPLE-1012, [0012-0013], [0018], Abstract. More specifically, Kitamura describes a technique where the CCD image sensor is switched between a "normal mode" and an "area-limited mode" during auto-focus. *See* APPLE-1012, Abstract. In the "normal mode," Kitamura's CCD outputs image data corresponding to all of its pixels, while in the "area-limited mode" the CCD outputs data corresponding to a lesser amount of pixels in and around the area of intended focus. *See* APPLE-1012, [0062-0063], Figures 4-5 (below).

FIG. 4

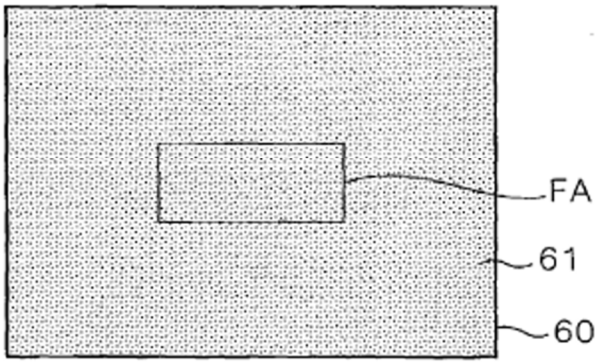
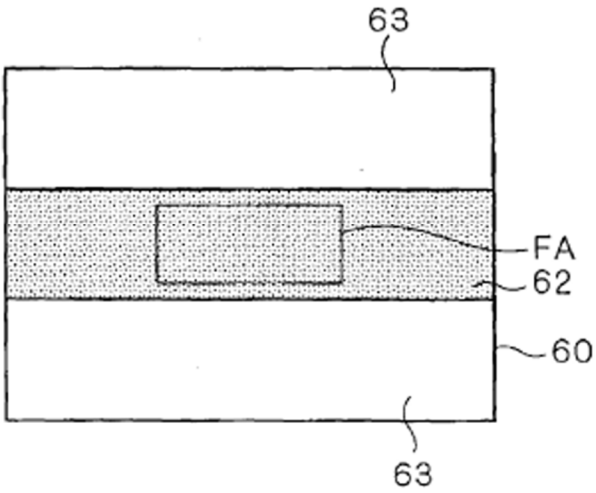


FIG. 5



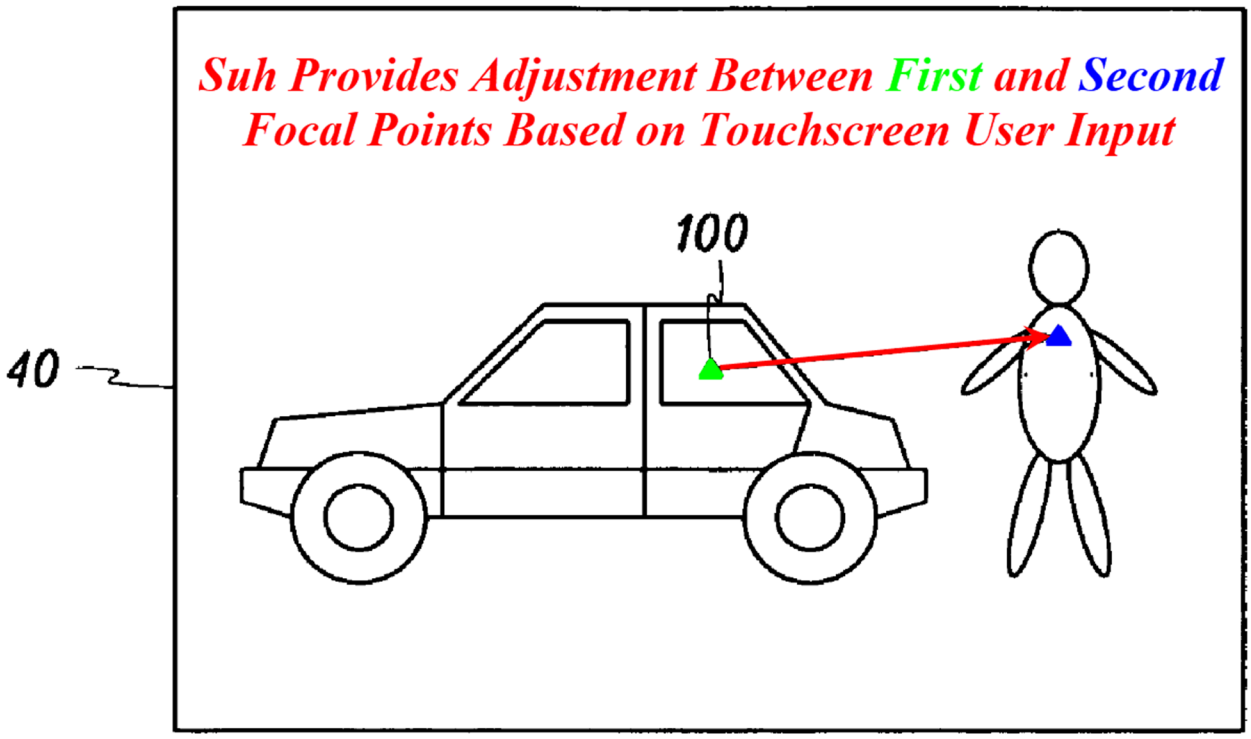
The CCD of Kitamura's digital camera outputs fewer pixels in the "area-limited mode" (FIG. 5) than in the "normal mode" (FIG. 4) to maintain the live-view image on the LCD during auto-focus.

Data from both the "normal mode" and the "area-limited mode" is used to facilitate auto-focus, but only the "normal mode" data is used to update the live-view image provided on the LCD. *See* APPLE-1012, [0072], [0075]. Data output from the CCD in the "area-limited mode" is provided at a higher frame rate than data output in the "normal mode" due to the lesser number of pixels, which enables multiple "area-limited mode" outputs after each "normal mode" output. *See* APPLE-1012, [0063-0065]. Thus, during the auto-focus procedure, the data obtained in the "area-limited mode" is used to adjust the position of the focusing lens through multiple cycles between updates of the live-view image on the LCD. *See* APPLE-1012, [0101-0111], Figure 8.

Overview of Suh[5]

Suh describes "a method for controlling a focus position for a digital still camera." APPLE-1013, 1:34-39; *see also* APPLE-1003, ¶127. In particular, Suh's technique involves utilizing an LCD unit **40** including an LCD screen **42** and a touch screen **44** as an interface for receiving user input to establish a selected focal point. *See*, *e.g.*, APPLE-1013, 2:21-25 ("The LCD unit **40** comprises a LCD screen **42** for displaying the image and a touch screen **44** for moving the focus position according to the user's selection."), 2:32-37 ("The apparatus additionally comprises a focus control unit **80** that moves a focus position according to the user's selection through the switch unit **30** or the touch screen **44** and displays the relocated focus position on the LCD unit **40**[.]"), 2:60-63 ("If a user moves the mark **100** using the switch unit **30** or the touch screen **44**, the user can move the focus position anywhere on the image displayed on the LCD unit **40**."), 3:13-23 ("A user can move the focus position by using the switch unit **30** that has arrow keys or a joy stick or the touch screen **44** without changing the frame and composition of the picture."), Figures 1, 2, 3 (annotated below).

[5] Petitioner incorporates this Suh discussion into Grounds 2A-2C, *infra*.



Overview of Steinberg'056[6]

Steinberg'056 describes a technique for determining the intensity of a built-in flash unit. *See* APPLE-1014, Abstract, [0026], [0093]; *see also* APPLE-1003, ¶128. In Steinberg'056, the flash intensity determination is made by comparing the overall exposure of the scene to the exposure of a particular focal point, such as a face detected in the image. *See* APPLE-1014, [0158]; *see also id*., [0128]. According to Steinberg'056, "[i]f the face regions are substantially darker than the overall exposure, the camera will then activate the flash in a fill mode, calculate the

[6] Petitioner incorporates this Steinberg'056 discussion into Grounds 2A-2C, *infra*.

necessary flash power, aperture and shutter speed, and acquire the image with the fill flash." APPLE-1014, [0158] (reference numerals omitted), Figure 4h.

The Konicek-Kitamura-Suh-Steinberg'056 Combination[7]

As mentioned, Konicek describes a digital camera including a variety of user-input mechanisms for controlling various functions of the device, including focal-point selection, auto-focus, and auto-flash. APPLE-1003, ¶129. While much of Konicek's disclosure concerns the application of gaze tracking technology as the input interface, a touch-sensitive LCD is also identified. APPLE-1003, ¶129. Integration of Kitamura's disclosure provides further implementation details concerning the auto-focus components and functionality cursorily disclosed by Konicek. APPLE-1003, ¶129. Kitamura's teachings further improve Konicek's camera by enabling a live-preview of the image to be displayed on the LCD as the auto-focus process is performed. APPLE-1003, ¶129. Incorporation of disclosures by Suh and Steinberg'056 further expound upon components and functionality suggested by Konicek—Suh with respect to the touch-sensitive LCD interface, and Steinberg'056 with respect to auto-flash. APPLE-1003, ¶129.

Additional details regarding the combined teachings of Konicek, Kitamura, Suh, and Steinberg'056, including the various motivations that would have led a

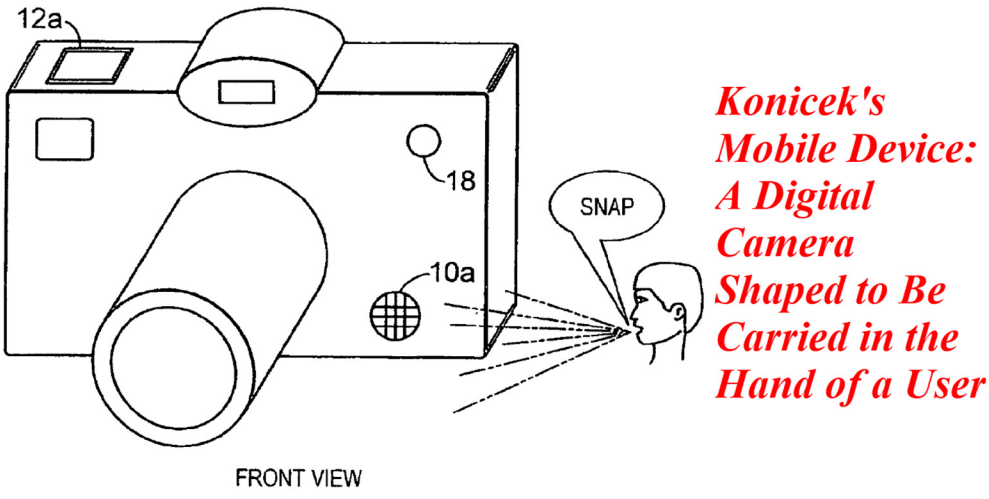
[7] Petitioner incorporates this discussion into Grounds 2A-2C, *infra*.

POSITA to implement such a combination, are provided in the following element-by-element analysis.

Claim 7:

7[pre]: "A method for operating a mobile device, the method being performed by one or more processors"

Even if the preamble *were* a limitation, which it is not, the Konicek-Kitamura-Suh-Steinberg'056 combination provides Element 7[pre]. APPLE-1003, ¶¶130-131, 143-145. For example, Konicek describes "[a] self-contained camera system." APPLE-1011, [0004]. As illustrated in Figure 1 of Konicek, the shape of the camera system is that of a handheld, point-and-shoot digital camera commonly carried and operated in the hands of a human user. APPLE-1003, ¶¶130 (citing APPLE-1026), 131; *see also* APPLE-1011 [0024] (referencing the "digital camera" of Figure 1). Likewise, the '928 Patent specifically identifies a "digital camera" as a type of "electronic device" (1:6-7, 7:9-12), and goes on to implicate the "handheld" characteristic as exemplary of a "*mobile* electronic device" (1:54-57).



As for controlling the various operations of the digital camera, Konicek's Figure 3 (annotated below) provides a functional diagram including a controller **40** receiving input signals and distributing control signals to various components of the camera, including a gaze tracker **57**, a touch pad device **62**, an AF motor **48**, an LCD **42**, a viewfinder **52**, and a camera CCD image sensor **54**. *See* APPLE-1011, Figure 3. Konicek specifically notes that controller **40** "is preferably a microprocessor." APPLE-1011, [0038]. Thus, Konicek's disclosure again mirrors the '928 Patent's specification, which states: "[T]he host processor **102** may comprise, or be implemented as . . . a microprocessor[.]" APPLE-1001, 3:17-30; APPLE-1003, ¶¶143-145.

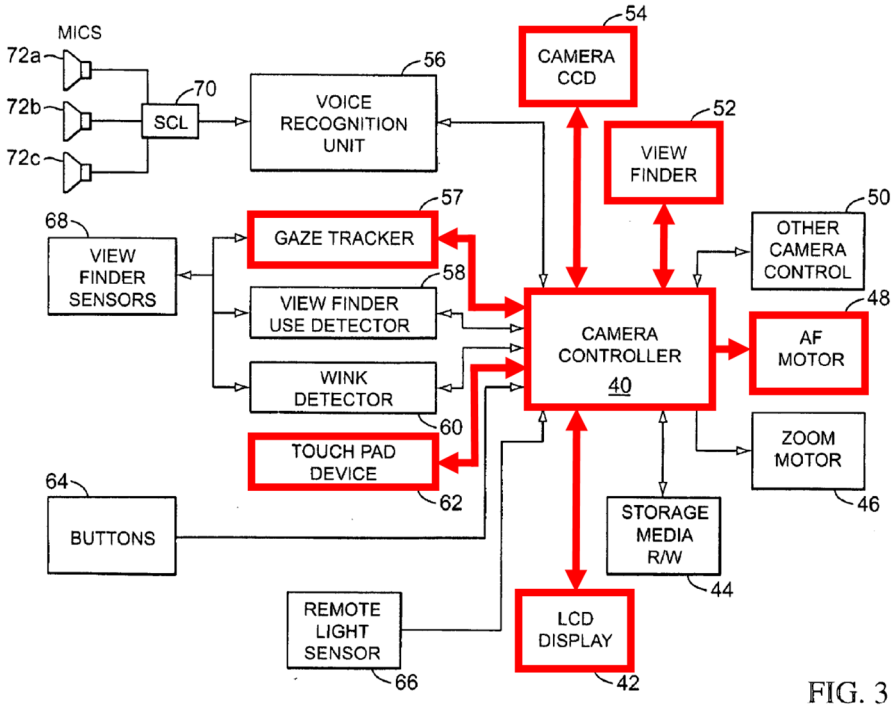
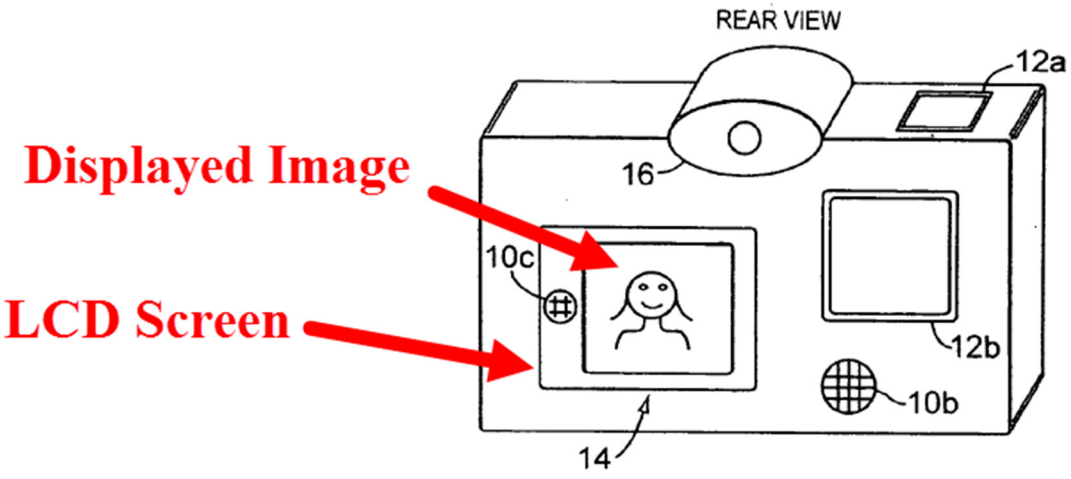


FIG. 3

Konicek's digital camera includes a microprocessor in the form of camera controller 40 that controls various camera operations.

7[a]: "displaying, on a touchscreen display, an image having a first focal point, the image being provided by a lens component"

The Konicek-Kitamura-Suh-Steinberg'056 combination provides Element 7[a]. APPLE-1003, ¶¶132-141, 157-161, 170. To start, Konicek describes an LCD that "employs touch sensitive technology." APPLE-1011, [0023]; *see also id.*, [0024], [0031], [0046] ("Still another contemplated embodiment applies the touch gesture recognition typically used with the computer-like touchpad technology to a touch sensitive display, such as the touch sensitive LCD of the camera[.]"). Such disclosure mimics the '928 Patent's specification, which refers to "[a] display **114** [that] may be implemented by a LCD such as a touch-sensitive color (e.g., 16-bit color) thin film transistor (TFT) LCD screen." APPLE-1001, 4:32-35. As shown in the rear view of Konicek's Figure 1 (annotated below), the touch-sensitive LCD **14** is capable of displaying an image.



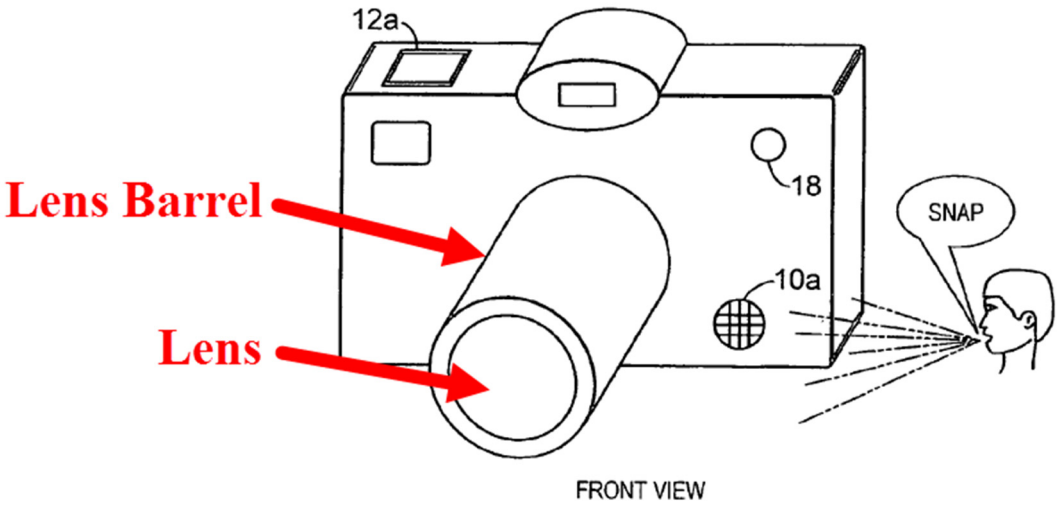
Suh similarly discloses a digital still camera featuring a touch-sensitive "LCD unit **40** for displaying the image." APPLE-1013, 2:13-20. "The LCD unit **40** comprises

an LCD screen **42** for displaying the image and a touch screen **44** for moving the focus position according to the user's selection." APPLE-1013, 2:21-24; *see also id*., 2:24-25. Thus, the disclosures of Konicek and Suh demonstrate that the Konicek-Kitamura-Suh-Steinberg'056 combination provides the claimed feature of displaying an image "on a touchscreen display."[8] APPLE-1003, ¶¶132-135.

The Konicek-Kitamura-Suh-Steinberg'056 combination further provides the feature of "the image being provided by a lens component," as claimed. APPLE-1003, ¶¶136-141. For example, the front view of Konicek's camera set forth in Figure 1 (annotated below) illustrates a lens fitted within a lens barrel. APPLE-1003, ¶¶136-137. Konicek also specifically mentions a "lens" in conjunction with zoom and auto-focus functionality. *See* APPLE-1011, [0031]; *see also id*., Figure 3 (depicting an auto-focus motor **48** for driving the lens) APPLE-1003, ¶137 (citing APPLE-1033). Thus, Konicek's disclosure is consistent with the '928 Patent's specification, which states: "Lens component **204** may consist of a photographic or optical lens or assembly of lenses[.]" APPLE-1001, 8:36-37; *see also id*., 8:39-50 (discussing zoom and auto-focus functionality). Moreover, a POSITA would have known and understood that the typical function of the lens in a digital camera is to

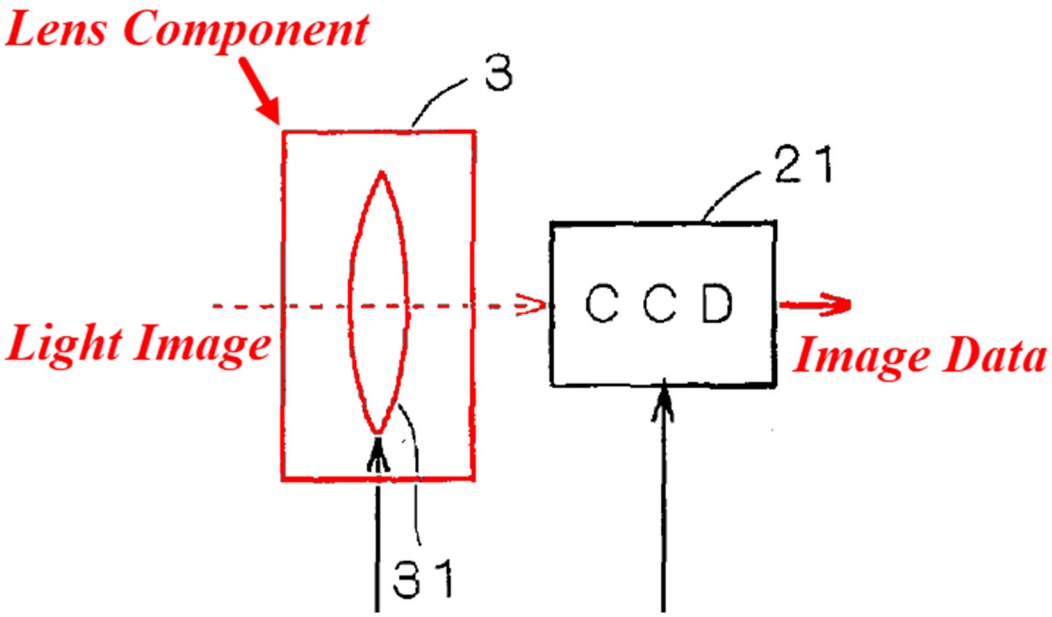
[8] *See* discussion at Element 7[b] regarding motivation to combine the disclosures of Konicek and Suh.

provide an image by directing light to an imaging sensor. APPLE-1003, ¶137 (citing APPLE-1017).



Kitamura further suggests obviousness of "the image being provided by a lens component." APPLE-1003, ¶¶138-140. For example, Kitamura describes a "taking lens **3** [having] therein a unit of a plurality of lenses including a focusing lens **31** (*see* FIG. 3) which determines a focus state of a subject image." APPLE-1012, [0050]. With continued reference to Figure 3 (annotated below), Kitamura goes on to explain that "a light image of the subject formed by the lens unit of the taking lens **3**" is converted by an image-sensing CCD **21** into "image data." APPLE-1012, [0060]; *see also id*., [0077] ("A lens driving unit **209** drives the focusing lens **31** in

the taking lens **3**, an aperture in the taking lens **3** for determining an incident light amount, and the like"), [0083] (describing auto-focus functionality).[9]



Kitamura then explains further that image data outputted from CCD **21** is processed, converted, stored, and transmitted to a liquid crystal monitor **28** for display. *See*, *e.g.*, APPLE-1012, [0066] (outputting image data), [0067] (signal processing), [0068] (converting), [0069] (storing), [0070] (imaging processing), [0071] (storing), [0072] (displaying).

A POSITA would have been motivated to supplement Konicek's disclosure with Kitamura's more thorough and comprehensive discussion of an adjustable lens

[9] Like Konicek and Kitamura, Suh also describes an adjustable focusing lens. *See*, *e.g.*, APPLE-1013, 2:13-20, 2:37-42, 3:38-4:9, Figures 1 and 4. Suh's disclosure, therefore, provides even further proof of obviousness.

that provides an image displayed on an LCD. APPLE-1003, ¶138. Indeed, Kitamura provides specific details that a POSITA having studied Konicek would have specifically sought out. APPLE-1003, ¶138. As would have been understood and appreciated by a POSITA, these aspects of Kitamura merely demonstrate implementation of notions expressed in Konicek's disclosure—*i.e.*, displaying an image on the LCD of a digital camera. APPLE-1003, ¶138. As such, the above-discussed elements of Konicek and Kitamura come together in a manner that is routine and predictable, each performing the same role in combination as it did separately. *KSR*, 550 U.S. at 416; MPEP §2143 I(A); APPLE-1003, ¶138.

The Konicek-Kitamura-Suh-Steinberg'056 combination still further provides that the image on the touchscreen display has "a first focal point." APPLE-1003, ¶¶157-161. For example, a POSITA would have been motivated to configure Konicek's camera to conduct an initial auto-focus routine to provide a default first focal point in the middle of the LCD screen. APPLE-1003, ¶¶159-161. As noted by Konicek, a "center weighted" auto-focus routine was known and conventional in the prior art, and therefore would have been easily implemented by a POSITA with predictable results. APPLE-1011, [0028]; *see also KSR*, 550 U.S. at 416; MPEP §2143 I(A); APPLE-1003, ¶159 (citing APPLE-1017). Indeed, a similar technique was described by Kitamura years before Konicek and the '928 Patent. *See* APPLE-1012, [0055], Figure 2. Moreover, Suh describes a technique for facilitating focal-

point selection using a touch-sensitive LCD where the user initially views the scene on the LCD with the object in the center of the screen in focus. *See* APPLE-1013, 3:13-16 ("The mark **100** is on a car located at the center of the LCD unit **40** and initially the car located at the center of the LCD unit **40** is focused.") (emphasis added), 2:56-63 ("Then, an initial focus position is on the center of the image displayed on the LCD unit **40**.").

A POSITA would have been motivated to implement a central default focal point for multiple reasons. **First**, a POSITA would have recognized that automatically focusing the image by default would provide the user with a clearer initial preview of the image. APPLE-1003, ¶161. **Second**, a POSITA would have understood that users tend to center the primary subject of the scene in the frame. APPLE-1003, ¶161 (citing APPLE-1012, [0062] ("An image of a main subject in the image data **60** is very likely to exist in an almost center portion. Thus, as shown in the diagrams, the almost center portion is assigned to a focusing area FA as an area on which focus is achieved.")). As such, providing a central default focal point would predictably improve the user's experience with operating Konicek's camera by foregoing unnecessary focal-point selection when the subject of the scene is centered. APPLE-1003, ¶161. This would reduce the perceptible lag between framing the scene and capturing the image. APPLE-1003, ¶161.

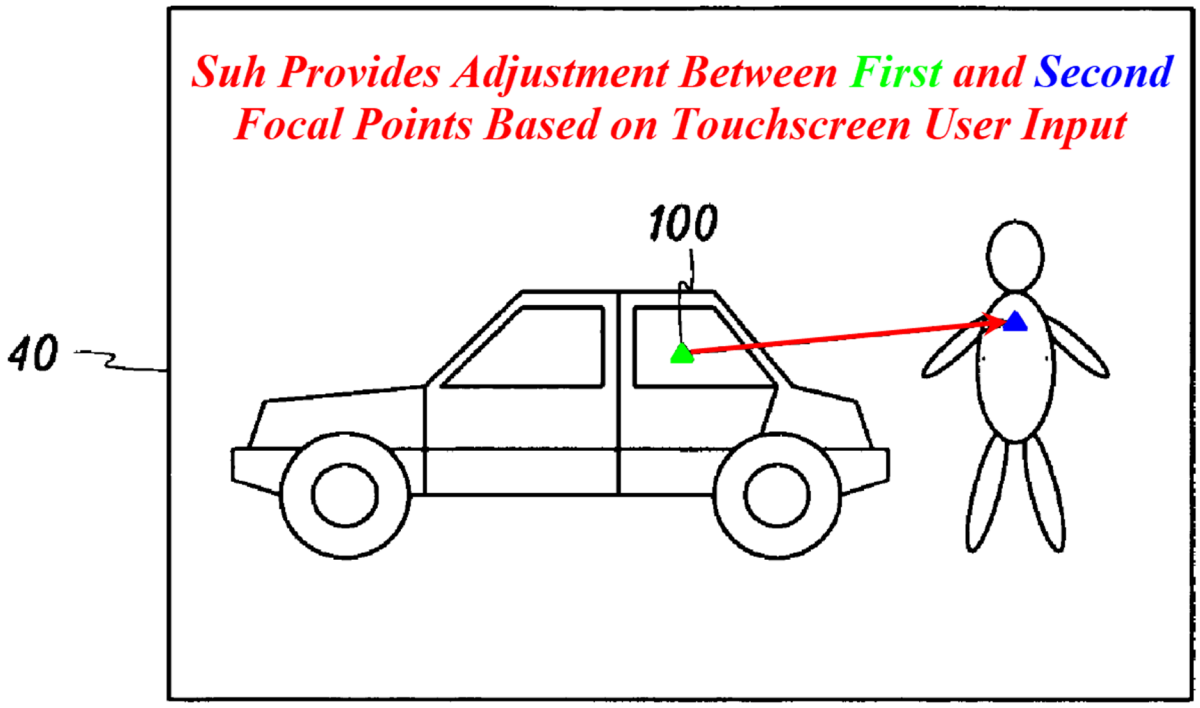
Further, a POSITA would have been motivated to configure Konicek's camera to enable re-positioning of a previously established user-defined focal point (*see* discussion at Element 7[b], *infra*). In this scenario, the first focal point would be established when the user touched a first portion of the display, and the second focal point would be established when the user subsequently touched a second, different portion of the display. APPLE-1003, ¶¶157-158 (explaining that users may mistakenly select a focal point they did not intend and/or simply decide that a different portion of the image should be in focus). Notably, this iterative approach to focal-point selection parallels that which Patent Owner has advanced in support of infringement allegations against Petitioner. *See* APPLE-1034, 32 ("[T]he Accused Products display an image that first has a focal point determined by, e.g., the Accused Products' autofocus feature or a previous user-selected focal point."); *Ex parte Schulhauser*, Appeal No. 2013-007847 at 12 (PTAB Precedential, April 28, 2016) (BRI before the PTAB must at least encompass BRI for purposes of infringement).

7[b]: "selecting a second focal point for the image in response to receiving a first type of user input on the touchscreen display, the second focal point corresponding to a location on the image displayed on the touchscreen display"

The Konicek-Kitamura-Suh-Steinberg'056 combination provides Element 7[b]. APPLE-1003, ¶¶157-158, 162-170. To start, Konicek describes an electronic viewfinder (EVF) featuring "gaze tracking capability" that "is operable for determining the area or approximate location of the viewfinder image at which the user is gazing." APPLE-1011, [0026]. According to Konicek, when the user looks at different areas of the image on the EVF, "the gaze tracker subsystem informs the camera systems so that a mouse-like pointer or cursor is moved by the camera system to the area of the EVF image indicated by the gaze tracking device to be the area the user is viewing." APPLE-1011, [0026]. Konicek goes on to describe an application of "gaze tracking to assist the auto focus (AF) capability of the prior art camera." APPLE-1011, [0028]. More specifically, the gaze tracking subsystem informs the AF system "as to the location of the image that the user is gazing" and the AF system "use[s] this information to weight this area of the image when determining focus." APPLE-1011, [0028]. As noted by Petitioner's expert, this disclosure is consistent with the '928 Patent's description of the image "focal point." APPLE-1003, ¶¶157-158, fn5 (citing APPLE-1001, 9:4-6 (the term "focal point" refers to "the center of interest of a photograph"), 12:38-40 ("In the given example, the user may tap the touchscreen display in the area of the face of their friend to change the focal point

away from the waterfall.")). Thus, Konicek's gaze tracking technology would have suggested to a POSITA the obviousness of enabling a user to prompt "select[ion] [of] a second focal point for the image" through user input, as claimed. APPLE-1003, ¶¶157-158.

Where Konicek falls short is in its lack of clear disclosure regarding a touchscreen-display interface for establishing the user-selected second focal point. Konicek, however, is not entirely silent regarding touchscreen functionality and, in fact, suggests use of a touch-sensitive LCD for controlling various camera features. APPLE-1003, ¶¶130, 133, 162 (citing APPLE-1011, [0046]); *see also* Element 7[a], *supra*. Suh's disclosure further expounds upon Konicek's suggestion, describing an LCD unit **40** including an LCD screen **42** and a touch screen **44** as an interface for receiving user input to establish a selected focal point of the displayed image. *See*, *e.g.*, APPLE-1013, 2:21-25, 2:32-37, 2:60-63, 3:13-23, Figures 1-3; *see also* discussion at pp. 13-14, *supra*; APPLE-1003, ¶¶163-165. More specifically, the user interfaces with Suh's touch-sensitive LCD unit **40** to relocate a mark **100** overlaying the image, and the auto-focus routine places the portion of the image corresponding to the mark **100** in focus. *See generally*, 3:1-4:9, Figure 3 (annotated below).



While Suh does not specify which "type" of touch gesture is used to invoke a focal-point selection, Konicek describes a touch-and-hold gesture (*i.e.*, the claimed "user input of a first type") for auto-focus that would have been suitable for implementing Suh's technique. APPLE-1003, ¶¶162 (citing APPLE-1011, [0031] ("[T]he inventive camera system locks the focus or provides continually focusing [sic] while the person's touch is sensed.")), 166. Konicek's touch-and-hold technique is consistent with the '928 Patent's specification, which broadly states that "[p]ressure may be applied to display **114** by any suitable input device." APPLE-1001, 9:17-21. Moreover, Patent Owner's infringement allegations specifically map a touch-and-hold gesture to the '928 Patent's claims. *See* APPLE-1035, 21 ("the user can press and hold on any point in the image to autofocus on that point and

engage the 'AE/AF Lock' mode, which selects and maintains a new focal point in the image"), APPLE-1034, 83 (Patent Owner referencing a "touch and hold" gesture with respect to the similar language of claim 1). Thus, the combined teachings of Konicek and Suh provide the feature of "selecting a second focal point for the image in response to receiving a first type of user input on the touchscreen display, the second focal point corresponding to a location on the image displayed on the touchscreen display." APPLE-1003, ¶170.

For multiple reasons, a POSITA would have been motivated to upgrade Konicek's camera by enabling the selection of a focal point based on a user's physical interaction with the touch-sensitive LCD, as disclosed by Suh. APPLE-1003, ¶¶162, 166-169. **First**, the POSITA would have understood that by 2007 (two years after Konicek was filed) LCD size and screen resolution on portable digital cameras had advanced to the point where many users preferred utilizing the live preview feature on the LCD for scene framing in lieu of a near-to-the-eye electronic or optical viewfinder, at least in certain circumstances (*e.g.*, when placing the camera at a particularly low angle near the user's feet or a particularly high angle over the user's head). APPLE-1003, ¶167 (citing APPLE-1017; APPLE-1028; APPLE-1029). As such, enabling focal-point selection via Konicek's touch-sensitive LCD, in the manner described by Suh, would have provided the predictable advantage of allowing the user to choose whether to interface with the EVF or LCD for framing

and focusing purposes. APPLE-1003, ¶167. This falls in line with Konicek's expressly stated objective of "mak[ing] the camera system more user friendly with a more natural and intuitive user interface." APPLE-1011, [0005].

Second, the POSITA would have appreciated that providing an additional means of user input (*i.e.*, the touch-sensitive LCD) for focal-point selection would have improved the reliability of Konicek's camera. APPLE-1003, ¶168. That is, the added user interface mechanism would serve as a redundancy, so that the camera could still offer focal-point selection functionality even if the gaze tracking components failed or did not work properly in certain conditions, or if the user erred in operating the device through gaze tracking. APPLE-1003, ¶168 (citing APPLE-1030).

Third, as an alternative to providing these technologies in parallel, a POSITA would have appreciated the advantages of entirely replacing Konicek's gaze-tracking EVF functionality with Suh's touch-sensitive LCD functionality for focal-point selection. APPLE-1003, ¶169. For example, a POSITA would have appreciated that removing the EVF would enable a sleeker and more compact form factor, which would make the camera easier to store and transport. APPLE-1003, ¶169 (citing APPLE-1031). Moreover, a POSITA would have realized that removing the EVF would reduce part count and complexity, which would consequently reduce production costs. APPLE-1003, ¶169.

Fourth, Konicek's disclosure strongly suggests the interchangeability of the various disclosed user-input technologies, and specifically notes that the touch-sensitive LCD can be leveraged to "allow[] the user to interact with menus, features and functions displayed on the LCD." APPLE-1003, ¶162 (quoting APPLE-1011, [0023]; citing *id*., [0027], [0046]). Recognizing the parallels between Konicek's gaze tracking and touch-sensitive LCD functionality, the result of combining Suh's teachings with Konicek's would have been predictable to a POSITA, and the POSITA would have had a reasonable expectation of success in applying the combination. APPLE-1003, ¶166.

While the above discussion addresses the term "focal point" in the context of the '928 Patent's specification, the '928 Patent's claims are still rendered obvious even under a different interpretation of the term "focal point." For example, the focal-point selection feature of Element 7[b] remains fulfilled by the cited art references, even if the Board were to consider statements made by the applicant of '928 Patent's counterpart European application sufficient to limit the term "focal point" to an interpretation from an optics perspective (*e.g*., the point at which the light in the lens system should converge or diverge).[10] APPLE-1003, ¶158. As

[10] Of course, the Board "is under no obligation to accept a claim construction proffered as a prosecution history disclaimer, *which generally only binds the patent*

Petitioner's expert explains, the disclosure of Konicek, Kitamura, and Suh suggests and demonstrates obviousness of a paradigm where the user provides an instruction to the camera (by touching the touchscreen display) that causes the camera to select a new focus lens position through an auto-focus procedure. APPLE-1003, ¶158 (citing APPLE-1011, [0004], [0026], [0028-0032], APPLE-1012, [0012-0013], [0018], [0050], [0075], [0077], [0080], [0083]; APPLE-1013, 1:34-39, 2:21-25, 2:32-42, 2:56-63, 3:13-23; APPLE-1033, 1-3). As to auto-focus, it would have been obvious to a POSITA in view of the teachings from Konicek, Kitamura, and Suh that such a procedure would involve movement of the focus lens. APPLE-1003, ¶158 (citing APPLE-1033, 1-3). And, the POSITA would have understood that the optical focal point of the lens assembly moves relative to the image sensor as the focus lens is moved during auto focus. APPLE-1003, ¶158 (citing APPLE-1033, 1-3; APPLE-1036, 3-7, 24-26). Thus, selectively moving the focus lens position selectively moves the optical focal point of the lens assembly relative to the image sensor. APPLE-1003, ¶158.

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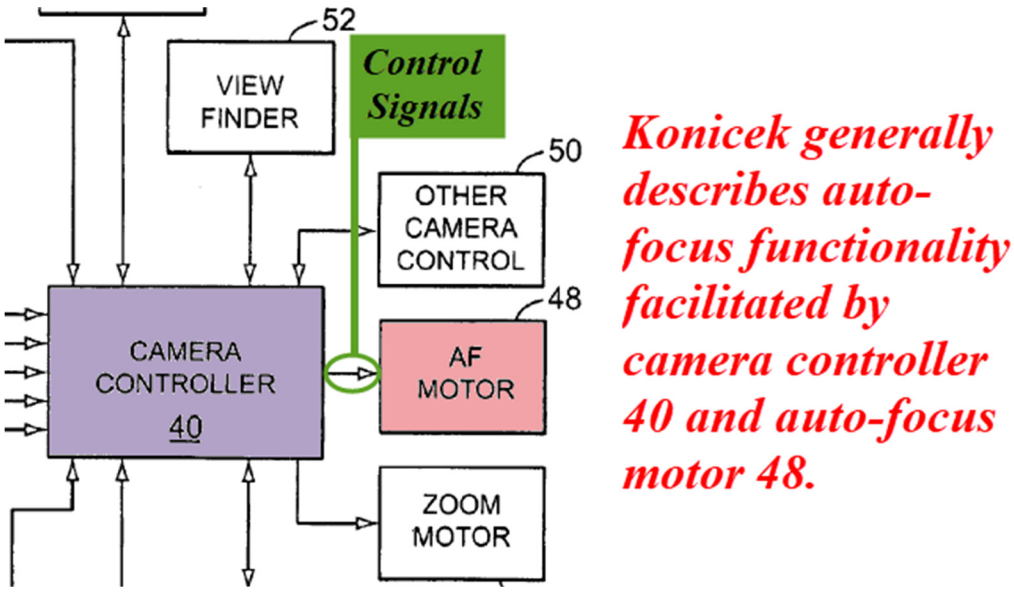
owner." *See*, *e.g.*, IPR2017-01833, Paper 8 at 11-12, 14 (PTAB Feb. 5, 2018) (quoting Tempo *Lighting*, *Inc. v. Tivoli*, *LLC*, 742 F.3d 973, 977 (Fed. Cir. 2014) (emphasis added)).

7[c]: "focusing the lens component from the first focal point to the second focal point while the image is being displayed"

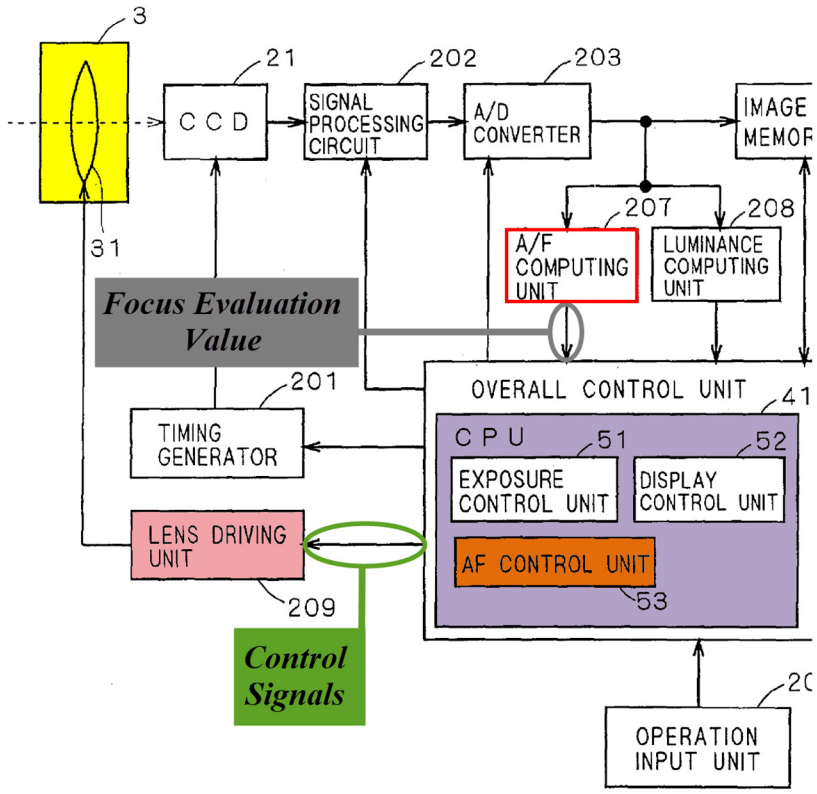
The Konicek-Kitamura-Suh-Steinberg'056 combination provides Element 7[c]. APPLE-1003, ¶¶146, 148-161, fn4. As previously discussed (*see* Element 7[b], *supra*), this combination provides auto-focus functionality based on a focal point selected via user interaction with a touch-sensitive LCD. Regarding auto-focus, Konicek's Figure 3 (annotated below) illustrates an auto-focus (AF) motor **48** (red) receiving control signals (green) from a camera controller **40** (purple) implemented as a microprocessor (*see* Element 7[pre], *supra*); APPLE-1003, ¶148.



Kitamura's disclosure bolsters Konicek's identification/suggestion of auto-focus, providing additional implementation details and more clearly explaining that the process is performed "while the image is being displayed," just as claimed. APPLE-1003, ¶¶149-156. Indeed, as previously discussed (*see* pp. 10-12, *supra*), Kitamura's disclosure specifically addresses the problem of simultaneously

displaying a live preview of the image on an LCD while conducting auto-focus operations. *See* APPLE-1012, Abstract, [0012-0013], [0018], [0062-0065], [0072], [0074-0075], [0083-0111], Figures 4-5, 7, 8; APPLE-1003, ¶¶152-153. For example, Kitamura states: "[A]n object of the present [disclosure] is to provide an image capturing apparatus capable of appropriately displaying an image of a subject on a display while promptly performing a focus control." APPLE-1012, [0018]. Thus, Kitamura's teachings are consistent with the relevant portion of the '928 Patent's specification. *See* APPLE-1001, 9:1-4 (discussing "a substantially real-time preview of the image").

Similar to Konicek, Kitamura's camera features an overall control unit **40** including a CPU **41** for receiving input signals and distributing control signals to various components. *See* APPLE-1012, [0079-0080]. With respect to auto-focus functionality, Kitamura's CPU **41** (purple) includes an AF control unit **53** (orange) that provides control signals (green) to a lens driving unit **209** (red) for driving a focusing lens **31** of taking lens **3** (yellow, mapped to the claimed "lens component" at Element 7[a], *supra*) based on a focus evaluation value (gray) from an AF computing unit **207** (red outline). *See* APPLE-1012, [0075] (AF computing unit **207**), [0077] (driving of focus lens **31**), [0080] (AF control unit **53**), [0083-0085] (interaction between components), Figure 3 (annotated below); APPLE-1003, ¶¶146, 149-150, 154-155.



Kitamura provides a more detailed discussion of auto-focus facilitated by the AF control unit 53 and lens driving unit 209.

In the context of Konicek's camera (as modified by Suh), the AF control unit **53** would facilitate adjustment from the first focal point (*i.e.*, a default focal point established at the center of the display, or a prior user-selected focal point, as discussed at Element 7[a], *supra*) to the second focal point established via user-interaction with the touch-sensitive LCD (*see* Element 7[b], *supra*). APPLE-1003, ¶¶157-161, fn4.

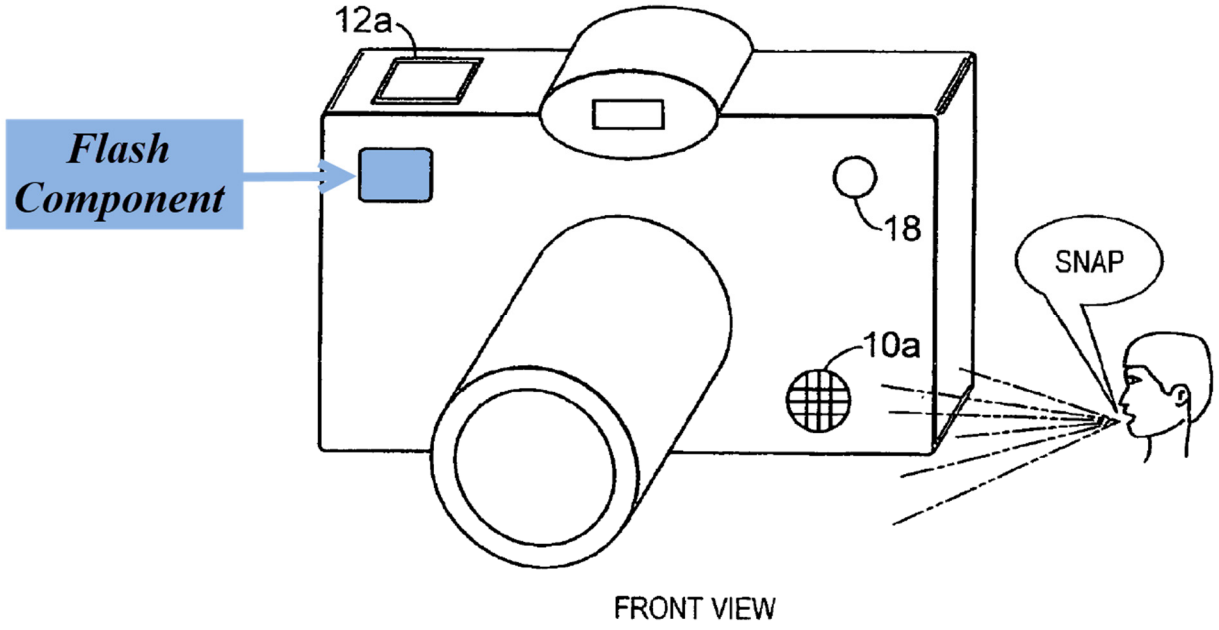
A POSITA would have been motivated to incorporate the above-discussed auto-focus functionality of Kitamura into Konicek's camera (as modified by Suh). APPLE-1003, ¶¶151-152, 156. In fact, a POSITA would have sought out Kitamura's disclosure to provide a suitable auto-focus technique. APPLE-1003,

¶¶151-152. In other words, the POSITA would have taken the suggestion of auto-focus in Konicek as a cue to find and incorporate the specific components and functionality described by Kitamura. *See* MPEP 2141(III); APPLE-1003, ¶¶151-152. Moreover, a POSITA would have viewed Kitamura's technique as advantageous, recognizing that it would have enabled the auto-focus procedure of Konicek's camera to be completed more quickly without turning off the live-preview of the image provided on the LCD. APPLE-1003, ¶156 (citing APPLE-1012, [0010]). Thus, a POSITA would have recognized that combination with Kitamura would yield an improved user experience with Konicek's camera by enabling the ability to quickly focus and capture an image while simultaneously previewing the same. APPLE-1003, ¶156; *see also KSR*, 550 U.S. at 417, 405; MPEP § 2143 I(C)-(D).

7[d]: "selecting a flash level value representing a flash intensity for a flash component based on the second focal point"

The Konicek-Kitamura-Suh-Steinberg'056 combination provides Element 7[d]. APPLE-1003, ¶¶42, 142, 171-176. To start, Konicek describes a technique for "enabl[ing] the flash of the camera system" based on a user-selected focal point. APPLE-1011, [0029]; APPLE-1003, ¶¶42, 142, 171. The hardware element of Konicek's camera a POSITA would identify as corresponding to the claimed "flash component" is depicted in Figure 1 (annotated below) of the reference. APPLE-

1003, ¶¶42 (noting, *inter alia*, that the '928 Patent's specification (10:16-32) merely implicates a typical/conventional flash), 142 (citing APPLE-1017).



As noted by Konicek, a conventional flash is commonly used to fill dimly lit scenes. *See* APPLE-1011, [0029]. Sometimes, however, the flash fails to provide the desired effect—for example, if the principal subject of the scene is in a shaded area but the rest of the scene is bright. *See* APPLE-1011, [0029]. To solve this problem, Konicek leverages its focal-point selection capability "to enhance the prior art method of determining the desire and amount of 'fill' flash in that the [] camera gives more weight, in determining the scene brightness, to the area of the scene indicated by the gaze tracker as being gazed upon." APPLE-1011, [0029]; APPLE-1003, ¶171. As previously discussed (*see* Element 7[b], *supra*), in the version of Konicek's camera modified by Suh, "the area of the scene indicated by the gaze

tracker as being gazed upon" corresponds to the user-selected second focal point established via interaction with the touch-sensitive LCD. Thus, the above-discussed teachings establish obviousness of the claimed "flash component," as well as the claimed functionality of implementing flash control "based on the second focal point."

This evaluation of the prior art under BRI is further solidified by Patent Owner's expansive view of the claim language advanced in its infringement contentions. These contentions suggest the claimed focal-point based flash control feature is met by overall scene analysis, which includes, but is not limited to, the user-selected focal point. *See* APPLE-1034, 143 ("In addition, the 'True Tone Flash' feature 'analyzes the scene and can present a color of flash of over 1,000 color variations to give exactly the right color of flash for the room, for the situation you are in."), 145 ("On information and belief, 'the situation' the Accused Products select the flash level and/or flash intensity on includes the second focal point selected by the user.").

As for the claimed feature of "selecting a flash level value representing a flash intensity," Konicek suggests its obviousness by referencing the "the desire and amount of 'fill' flash." APPLE-1003, ¶172. And, the disclosure of Steinberg'056 provides further details for implementing Konicek's suggestion. APPLE-1003, ¶¶172-176. In particular, as discussed above, (*see* pp. 15-16, *supra*) Steinberg'056

describes a technique for regulating flash intensity by "calculating the necessary flash power" based on the exposure at a particular focal point. APPLE-1014, [0158]. As would have been understood by a POSITA, the description in Steinberg'056 of "calculate[ing] the necessary flash power" for the fill flash at least renders obvious the claimed functionality of "selecting a flash level value representing a flash intensity." APPLE-1003, ¶173; *In re Bond*, 910 F.2d 831, 832 (Fed. Cir. 1990) (even anticipation is not an "*ipsissimis verbis*" test). Indeed, a POSITA would have known that the intensity of the flash could be viewed as the power of the flash per unit area. APPLE-1003, ¶173. In fact, these concepts are so closely related that Steinberg'056 uses the terms flash power and flash intensity interchangeably. APPLE-1014, (using the term "flash intensity" at Abstract, [0026], [0028], [0093], [0095]) (using the term "flash power" at [0128], [0130], [0158]).

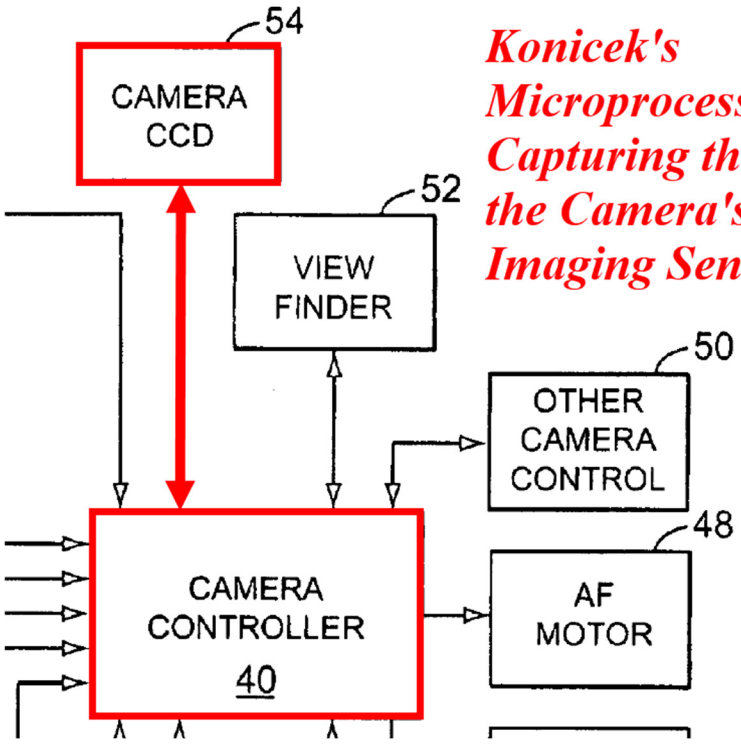
A POSITA would have been motivated to integrate the teachings of Steinberg'056 concerning a flash intensity determination based on focal point into the camera of Konicek-Kitamura-Suh. APPLE-1003, ¶172-175. In fact, a POSITA would have sought out the disclosure of Steinberg'056 to fill in the missing details of Konicek on this subject. APPLE-1003, ¶172. As discussed above, Konicek's disclosure is specifically concerned with "determining the desire and amount of 'fill flash'[.]" APPLE-1011, [0029]. Thus, a POSITA would have taken the suggestion of flash intensity adjustment in Konicek as a cue to find and incorporate the specific

functionality described by Steinberg'056. APPLE-1003, ¶172; *see also* MPEP 2141(III).

Not only would the suggestion from Konicek have led a POSITA to Steinberg'056, the POSITA would have been more than capable of implementing Steinberg's approach in the context of Konicek. APPLE-1003, ¶174. Indeed, Steinberg'056 makes clear that "[t]he relationship between flash power, the aperture and the shutter speed are well formulated and known to one familiar in the art of photography." APPLE-1014, [0158]. Moreover, while much of the Steinberg'056 disclosure emphasizes automatically recognized faces as the focal points of interest, other portions of Steinberg'056 suggest user-selection of focal points, similar to Konicek and Suh. APPLE-1003, ¶174 (citing APPLE-1014, [0013], [0120], [0132], [0203]). Further still, given the similarities between Steinberg'056, Konicek, and Suh, a POSITA would have expected this combination to result in improved image quality by controlling fill flash intensity based on the user-selected focal point and, therefore, properly exposing the image at the area of interest designated by the user. APPLE-1003, ¶175 (citing APPLE-1014, [0015], [0062], [0158]). "Improv[ing] image quality of pictures taken by the camera system" is a motivation expressly mentioned by Konicek. APPLE-1011, [0005].

7[e]: "capturing the image, based on the flash level value, in response to a second type of user input on the touchscreen display, the second type of user input being different than the first type of user input"

The Konicek-Kitamura-Suh-Steinberg'056 combination provides Element 7[e]. APPLE-1003, ¶¶177-182. **First**, the combination provides the feature of "capturing the image." APPLE-1003, ¶¶177-180 (citing APPLE-1017, APPLE-1032). For example, Konicek discloses touch gesture recognition to "trip[] the shutter," which a POSITA would have recognized as a precursor to image capture. APPLE-1011, [0030-0031] (describing use of a touchpad to trip the shutter, and stating "the touch sensitive input device could be comprised of other structure, for instance, the aforementioned touch-sensitive LCD display"); APPLE-1003, ¶178 (citing APPLE-1017; APPLE-1032). As further evidence, Konicek lists "touch input" as a control mechanism for "commanding picture taking." APPLE-1011, [0046]. Further still, Konicek's Figure 3 (annotated below) illustrates controller **40**, which corresponds to the "one or more processors" (*see* Element 7[pre], *supra*), communicatively and/or functionality coupled to the camera's CCD imaging sensor **54**. APPLE-1003, ¶180 (referencing APPLE-1011, Figure 3).



Suh and Steinberg'056 provide similar disclosures regarding image capture. *See*, *e.g.*, APPLE-1013, 4:12-21 ("the picture is taken"); APPLE-1014, [0158] ("acquire the image [] with the fill flash").

Second, the Konicek-Kitamura-Suh-Steinberg'056 combination further provides that the image is captured "based on the flash level value," as claimed. APPLE-1003, ¶181. As previously discussed, Steinberg'056 describes a technique for determining flash intensity. *See* Element 7[d], *supra*. Steinberg'056 then also predictably explains that the image is acquired using the calculated fill flash. *See* APPLE-1014, [0158], Figure 4h (Step **492**: "Calculate Fill Flash power as function of aperture and Shutter" and Step **494**: "Take Picture with Fill Flash").

It would have been obvious to incorporate the concept in Steinberg'056 of capturing the image with the calculated fill flash into the Konicek-Kitamura-Suh camera. APPLE-1003, ¶181. A POSITA would have viewed this as a natural step towards achieving a properly exposed image, a benefit of calculating flash intensity based on image focal point. APPLE-1003, ¶181. In other words, a POSITA would have appreciated that the flash should be activated to provide the calculated flash power at the time of image capture to properly expose the image. APPLE-1003, ¶181. Thus, the combination of Konicek-Kitamura-Suh and Steinberg'056 in this regard would have amounted to no more than the predictable result of using a known technique (Steinberg's fill flash calculation and image capture with the calculated fill flash) to improve or simply render operable a similar known device (Konicek's camera with fill flash functionality). *KSR*, 550 U.S. at 416-17; MPEP §2143 I(A), I(C); APPLE-1003, ¶181.

Third, the Konicek-Kitamura-Suh-Steinberg'056 combination provides that the image is captured "in response to a second type of user input on the touchscreen display, the second type of user input being different than the first type of user input." APPLE-1003, ¶¶177, 182. For example, Konicek, as modified in view of Suh, provides a first type of user input for focal-point selection as a touch-and-hold gesture (*see* Element 7[b], *supra*) and a second type of user input for image capture as a tap gesture (*i.e.*, a touch-and-release gesture). *See* APPLE-1011, [0031]

("wherein a tap of the touchpad then trips the shutter"), [0046] (touchpad gestures can be implemented on the touch-sensitive LCD, *e.g.*, for "commanding picture taking"); APPLE-1003, ¶177 (cross referencing ¶¶162, 166, 170). Similar to the '928 Patent's disclosure of different taps—*i.e.*, single tap versus double tap (12:35-45, cl.16)—Konicek's touch-and-hold and tap gestures are also different types of user input under BRI. APPLE-1003, ¶182.

Claim 10:

Claim 10 is substantially similar to claim 7, merely reciting the same series of steps in Beauregard[11] form. Thus, like claim 7, the obviousness of claim 10 in view of the Konicek-Kitamura-Suh-Steinberg'056 combination is demonstrated by the analysis articulated above. Identification of the relevant discussion for each step is provided below.

[11] Beauregard claims are typically treated as method claims. *See*, *e.g.*, *Digital-Vending Services Intern.*, *LLC v. University of Phoenix*, *Inc.*, 672 F.3d 1270, 1275 n.1 (Fed. Cir. 2012); *accord Amazon.com, Inc. et al.* v. *Avago Technologies General IP (Singapore) Pte. Ltd.*, IPR2017-00963, Paper 14 at 14 (PTAB Sept. 13, 2017).

10[pre]: "A non-transitory computer readable storage medium storing instructions[12], the instructions when executed by one or more processors cause the one or more processors to perform a method"

See Element 7[pre], *supra*.

10[a]: "displaying, on a touchscreen display, an image having a first focal point, the image being provided by a lens component"

See Element 7[a], *supra*.

10[b]: "selecting a second focal point for the image in response to a first type of user input on the touchscreen display, the second focal point corresponding to a location on the image displayed on the touchscreen display"

See Element 7[b], *supra*.

10[c]: "focusing the lens component from the first focal point to the second focal point while the image is being displayed"

See Element 7[c], *supra*.

10[d]: "selecting a flash level value representing a flash intensity for a flash component based on the second focal point"

See Element 7[d], *supra*.

[12] Disclosure of a processor performing a claimed function at least renders obvious execution of corresponding instructions. Indeed, as would have been known by a POSITA, one of the typical uses of a processor at the relevant time period (and now) was to "control[] interpretation and execution of instructions." APPLE-1003, ¶145 (citing APPLE-1027).

10[e]: "capturing the image, based on the flash level value, in response to a second type of user input on the touchscreen display, the second type of user input being different than the first type of user input"

See Element 7[e], *supra*.

B. [GROUND 2-B]—Claims 8, 11 are rendered obvious by Konicek in view of Kitamura, Suh, Steinberg'056, and Tanaka

Overview of Tanaka

Tanaka describes various techniques for establishing user-selected focal points via touch-based user input. *See*, *e.g.*, APPLE-1015, Abstract, [0002-0015], [0022]; *see also* APPLE-1003, ¶183. With reference to Figure 8, Tanaka states:

> "For example, as will be described later, during the shooting, if the user does the tap on any position of the intake image displayed on the LCD **28**, the touch panel **36** detects the coordinates of the position where the user carried out the tap, and provides the CPU **131** with the coordinates information through the input/output interface **135** and the bus **134**. After confirming that it is the position on the intake image according to the provided coordinates information, the CPU **131** controls each part and performs a corresponding process, such as moving an AF frame of a predetermined size to the position." APPLE-1015, [0106]; *see also id*., [0020], [0067], [0098-0105], [0143], [0213], [0281].

Claim 8:

8[pre]: "The method of claim 7"

See Elements 7[pre]-7[e], *supra*.

8[a]: "wherein focusing the lens component on the second focal point includes generating a set of coordinates for the second focal point"

The Konicek-Kitamura-Suh-Steinberg'056-Tanaka combination provides Element 8[a]. APPLE-1003, ¶¶184-188. As previously discussed (*see* p. 45, *supra*), in Tanaka's technique for establishing user-selected focal points, a touch panel **36** overlaying an LCD **28** communicates the coordinates of the user's touch to a CPU **131**. *See* APPLE-1015, [0106]; *see also id*., [0020], [0067], [0098-0105], [0143], [0213], [0281]. Thus, Tanaka's disclosure suggests obviousness of the claimed feature "wherein focusing the lens component on the [] focal point includes generating a set of coordinates for the [] focal point." APPLE-1003, ¶¶185-186 188. In the context of the Konicek-Kitamura-Suh-Steinberg'056 camera, the focal point designated by the user's touch in Tanaka would be the "second focal point." *See* Element 7[b], *supra*.

A POSITA would have viewed Tanaka's above-discussed functionality of generating coordinate values corresponding to the user's input on the touchscreen display as an obvious feature to be included within the touch-based focal-point selection of the Konicek-Kitamura-Suh camera. APPLE-1003, ¶¶184, 187; *see* Element 7[b], *supra*. As a matter of logic and common sense, a POSITA would have

understood that the processor would need to be made aware of the location of the user's touch in order to appropriately focus on that portion of the image. APPLE-1003, ¶187; *In re Preda*, 401 F.2d 825, 826, 159 USPQ 342, 344 (CCPA 1968)'") (the disclosure of a reference includes reasonable inferences drawn by a POSITA); *Perfect Web Techs*., *Inc*. *v*. *InfoUSA*, *Inc*., 587 F.3d 1324, 1329 (Fed. Cir. 2009) (an analysis of obviousness includes consideration of the POSITA's logic, judgment, and common sense). As such, integration of Tanaka would have amounted to no more than the predictable result of using a known technique (Tanaka's transmission of focal point coordinate values from the touchscreen display to the processor) to improve or simply render operable a similar known device. *KSR*, 550 U.S. at 416-17; MPEP §2143 I(A), I(C); APPLE-1003, ¶187. For these same reasons, a POSITA would have taken the suggestion of touch-based focal-point selection in Konicek-Kitamura-Suh-Steinberg'056 as a cue to find and incorporate the specific technique to enable this functionality, as described by Tanaka. APPLE-1003, ¶¶184, 187; *see also* MPEP 2141(III).

Claim 11:

Claim 11 recites a Beauregard step rendered obvious by the Konicek-Kitamura-Suh-Steinberg'056-Tanaka combination. The obviousness of claim 11 is demonstrated by the analysis articulated above with respect to claim 8, which expresses the same subject matter in the form of a traditional method step.

11[pre], 11[a]: "The storage medium of claim 10, wherein focusing the lens component on the second focal point includes generating a set of coordinates for the second focal point"

See Elements 10[pre]-10[e] (citing 7[pre]-7[e]), 8[a], *supra*.

C. [GROUND 2-C]—Claim 13 is rendered obvious by Konicek in view of Kitamura, Suh, Steinberg'056, and Suzuki

Overview of Suzuki

Suzuki describes a digital camera designed to perform white balance adjustment on image data. *See* APPLE-1016, Abstract, 1:25-33; *see also* APPLE-1003, ¶189. Suzuki's device includes a white balance detection processing circuit **35** including a white balance sensor **35A**—*i.e.*, a relatively low-resolution CCD image sensor sensitive to color temperature—and a CPU **35C** that "generates a white balance adjustment signal" including R gain and B gain values based on output from sensor **35A**. *See* APPLE-1016, 10:2-26.

Suzuki goes on to explain that this white balancing procedure is implemented to yield "fine adjustment" of the image. *See* APPLE-1016, 6:40-67; *see also id*., 11:10-19. Suzuki's white balance fine adjustment is performed based on data from the white balance sensor that corresponds to a selected focal point of the image. *See* APPLE-1016, 11:60-12:4 (explaining how selected areas of the image are extracted and used to calculate gain values for fine white balance adjustment), 12:63-13:30; *see also id*., 9:34-49 (focal point selection).

Claim 13:

13[pre]: "The storage medium of claim 10"

See Elements 10[pre]-10[e] (citing 7[pre]-7[e]).

13[a]: "wherein the instructions when executed by the one or more processors cause the one or more processors to perform a method further comprising modifying a white balance setting value for the image based on the second focal point"

The Konicek-Kitamura-Suh-Steinberg'056-Suzuki combination provides Element 13[a]. APPLE-1003, ¶¶190-196. As previously discussed (*see* p. 48, *supra*), Suzuki describes a white balance fine adjustment technique featuring RB gain values based on data from the white balance sensor that corresponds to a selected focal point of the image. *See* APPLE-1016, 9:34-49, 10:2-26, 11:60-12:4, 12:63-13:3. Gain value adjustment, as disclosed by Suzuki, is consistent with the relevant disclosure of the '928 Patent's specification, which states: "White balance control may refer to the adjustment of the relative amounts of red, green, and blue primary colors in an image[.]" APPLE-1001, 10:10-15. Thus, the Konicek-Kitamura-Suh-Steinberg'056-Suzuki combination provides the claimed feature of "modifying a white balance setting value for the image." APPLE-1003, ¶¶190-193 (cross-referencing ¶¶118-122 (citing APPLE-1025)), 196.

Moreover, in view of Suzuki's disclosure that the RB gain values are determined based on a selected/extracted portion of the image, the combination further suggests obviousness of performing white balance modifications "based on

the second focal point," as claimed. APPLE-1003, ¶194. That is, the selected/extracted areas of the image described by Suzuki would, in the context of the Konicek-Kitamura-Suh-Steinberg'056 combination, correspond to the portion of the image touched by the user on the touch-sensitive LCD. APPLE-1003, ¶¶194, 196.

Further still, as this technique is implemented through a white balance detection processing circuit **35** including a CPU **35C**, Suzuki at least renders obvious the claimed feature of "wherein the instructions when executed by the one or more processors [13] cause the one or more processors to perform a method further comprising modifying a white balance setting value for the image." APPLE-1003, ¶¶190-192, 196.

A POSITA would have been motivated to incorporate Suzuki's white balancing functionality into the Konicek-Kitamura-Suh-Steinberg'056 camera at least because such a combination would have yielded predictable improvements. APPLE-1003, ¶195; MPEP §2144(II). **First**, a POSITA would have understood that the purpose of performing white balancing is to improve image quality by adjusting the colors of the image to achieve a more natural appearance. APPLE-1003, ¶195.

[13] Disclosure of a processor performing a claimed function at least renders obvious execution of corresponding instructions. *See* fn9, *supra*.

Thus, incorporation of Suzuki's white balancing functionality would have predictably improved the images captured by the Konicek-Kitamura-Suh-Steinberg'056 camera. APPLE-1003, ¶195. **Second**, a POSITA would have appreciated that this improvement would have been furthered by controlling the white balance procedure based on the portion of the image designated as being of interest—*i.e.*, the user-selected focal point. APPLE-1003, ¶195.

V. PAYMENT OF FEES – 37 C.F.R. § 42.103

Apple authorizes the Patent and Trademark Office to charge Deposit Account No. 06-1050 for the fee set in 37 C.F.R. § 42.15(a) for this Petition and further authorizes payment for any additional fees to be charged to this Deposit Account.

VI. CONCLUSION

Petitioner request *Inter Partes* Review of these Challenged Claims pursuant to Grounds 2-A through 2-C.

VII. MANDATORY NOTICES UNDER 37 C.F.R § 42.8(a)(1)

A. Real Party-In-Interest Under 37 C.F.R. § 42.8(b)(1)

Petitioner, Apple Inc., is the real parties-in-interest.

B. Related Matters Under 37 C.F.R. § 42.8(b)(2)

Apple is filing one additional petition addressing claims 7, 8, 10, 11, and 13 of the '928 Patent concurrently with the filing of this Petition. The '928 Patent is the subject of a civil action in Case No. 3:17-CV-02403 at the United States District Court for the Southern District of California.

C. Lead And Back-Up Counsel Under 37 C.F.R. § 42.8(b)(3)

Apple provides the following designation of counsel.

Lead Counsel	Backup counsel
W. Karl Renner, Reg. No. 41,265 Fish & Richardson P.C. 3200 RBC Plaza 60 South Sixth Street Minneapolis, MN 55402 Tel: 202-626-5070 Fax: 877-769-7945 Email: IPR39521-0047IP2@fr.com	Thomas A. Rozylowicz, Reg. No. 50,620 Timothy W. Riffe, Reg. No. 43,881 Fish & Richardson P.C. 3200 RBC Plaza 60 South Sixth Street Minneapolis, MN 55402 Tel: 202-626-5070 Fax: 877-769-7945 PTABInbound@fr.com

D. Service Information

Please address all correspondence and service to the address listed above. Petitioner consents to electronic service by email at IPR39521-0047IP2@fr.com (referencing No. 39521-0047IP2 and cc'ing PTABInbound@fr.com, axf-ptab@fr.com, rozylowicz@fr.com and riffe@fr.com.

Respectfully submitted,

Dated 6/20/2018

/W. Karl Renner/
W. Karl Renner, Reg. No. 41,265

Dated 6/20/2018

/Thomas A. Rozylowicz/
Thomas A. Rozylowicz, Reg. No. 50,620

Fish & Richardson P.C.
3200 RBC Plaza, 60 South Sixth Street

Minneapolis, MN 55402
T: 202-626-5070
F: 877-769-7945

(Control No. IPR2018-01278) Attorneys for Petitioner

CERTIFICATION UNDER 37 CFR § 42.24

Under the provisions of 37 CFR § 42.24(d), the undersigned hereby certifies that the word count for the foregoing Petition for *Inter partes* Review totals 9,706 words, which is less than the 14,000 allowed under 37 CFR § 42.24.

Dated 6/20/2018

/Thomas A. Rozylowicz/
W. Karl Renner, Reg. No. 41,265
Thomas A. Rozylowicz, Reg. No. 50,620
Timothy W. Riffe, Reg. No. 43,881
Fish & Richardson P.C.
3200 RBC Plaza, 60 South Sixth Street
Minneapolis, MN 55402
T: 202-626-5070
F: 877-769-7945

Attorneys for Petitioner

CERTIFICATE OF SERVICE

Pursuant to 37 CFR §§ 42.6(e)(4)(i) *et seq.* and 42.105(b), the undersigned certifies that on June 20, 2018, a complete and entire copy of this Petition for *Inter partes* Review and all supporting exhibits were provided via Federal Express, to the Patent Owner by serving the correspondence address of record as follows:

Qualcomm /Norton Rose Fulbright US LLP
2200 Ross Avenue, Suite 3600
Dallas TX 75201-7932

/Diana Bradley/

Diana Bradley
Fish & Richardson P.C.
60 South Sixth Street, Suite 3200
Minneapolis, MN 55402
(858) 678-5667